4. (Previously presented) Magnetic disk drive of claim 3 wherein said layer of said lower magnetic layer structure comprises between 0 and 10 % X, where X is one or more elements other than Co, Cr, Ta, B or Pt.

5. (Previously presented) Magnetic disk drive of claim 3 wherein said layer of said lower magnetic structure comprises between 0 and 10% X, where X comprises one or more of Nb, Ta, Cu, Mo, W, V, Si, C, Pd, Ru, Ir or Y.

6. (Previously presented) Magnetic disk drive of claim 13 wherein the upper magnetic layer structure comprises a layer comprising mostly Co, between 10 and 30 at. % Cr, between 8 and 20 at. % Pt, and 0 to 20 at. % B.

7. (Previously presented) Magnetic disk drive of claim 6 wherein said layer of said upper magnetic layer structure comprises between 0 and 10 at. % X, wherein X is one or more elements other than Co, Cr, Pt or B.

8. (Previously presented) Magnetic disk drive of claim 7 wherein X comprises one or more elements selected from Nb, Ta, Cu, Mo, W, V, Si, C, Pd, Ru, Ir or Y.

9. (Previously presented) The magnetic disk drive of claim 13 further comprising an underlayer formed between the substrate and the lower magnetic layer structure.

10-12. (Canceled)

13. (Currently Amended) A magnetic disk drive comprising:

a magnetic disk containing recorded data;

a read-write head; and

a motor coupled to rotate said magnetic disk;

said magnetic disk comprising:

a substrate;

a lower magnetic layer structure formed over the substrate;

an intermediate layer comprising Ru;

an upper magnetic layer structure formed over the intermediate layer, said upper magnetic layer structure being antiferromagnetically coupled to the lower magnetic layer structure, wherein the relationship between the dynamic coercivity of the lower magnetic layer structure and the exchange field is such that after termination of application of a write magnetic field to ~~a~~ the usable locations on the disk the portion of the lower magnetic layer structure at said locations ~~achieves~~ achieve substantially ~~its~~ their steady magnetization state within the time required for one revolution of said disk.

14. (Previously presented) The magnetic disk drive of claim 13 wherein at least one of said upper and lower magnetic layer structures comprises a plurality of layers.

15. (Previously presented) The magnetic disk drive of claim 13 wherein a lowest magnetic layer structure is formed above said substrate, a second intermediate layer comprising Ru is formed between said lowest magnetic layer structure and said lower

magnetic layer structure, and said lowest magnetic layer structure is antiferromagnetically coupled to said lower magnetic layer structure.

16. (Canceled)

17. (Currently Amended) A magnetic disk drive comprising:

a magnetic disk containing recorded data;

a read-write head; and

a motor coupled to rotate said magnetic disk;

said magnetic disk comprising:

a substrate;

a lower magnetic layer structure formed over the substrate;

an intermediate layer comprising Ru; and

an upper magnetic layer structure formed over the intermediate layer, said upper magnetic layer structure being antiferromagnetically coupled to the lower magnetic layer structure, wherein the relationship between the dynamic coercivity of the lower magnetic layer structure and the exchange field is such that after termination of application of a write magnetic field to ~~a~~ the usable locations on the disk the portion of the lower magnetic layer structure at said locations ~~achieves~~ achieve more than 90% of ~~its~~ their steady magnetization state within the time required for one revolution of said disk.

18. (Currently Amended) A magnetic disk drive comprising:

a magnetic disk containing recorded data;

a read-write head; and

a motor coupled to rotate said magnetic disk;

said magnetic disk comprising:

a substrate;

a lower magnetic layer structure formed over the substrate;

an intermediate layer comprising Ru; and

an upper magnetic layer structure formed over the intermediate layer, said upper magnetic layer structure being antiferromagnetically coupled to the lower magnetic layer structure, wherein the relationship between the dynamic coercivity of the lower magnetic layer structure and the exchange field is such that after termination of application of a write magnetic field to ~~a~~ the usable locations on the disk the portion of the lower magnetic layer structure at said locations ~~achieves~~ achieve more than 95% of ~~its~~ their steady magnetization state within the time required for one revolution of said disk.

19. (Currently Amended) A magnetic recording medium comprising:

a substrate;

a lower magnetic layer structure formed over the substrate;

an intermediate layer comprising Ru; and

an upper magnetic layer structure formed over the intermediate layer, said upper magnetic layer structure being antiferromagnetically coupled to the lower magnetic layer structure, data being recorded in said magnetic layer structures, wherein the relationship between the dynamic coercivity of the lower magnetic layer structure and the exchange field is such that after termination of application of a write magnetic field to ~~a~~ the usable

locations on the disk a portion of the lower magnetic layer structure at said locations ~~achieves~~ achieve substantially ~~its~~ their steady magnetization state within 15 milliseconds.

20. (Currently Amended) A magnetic recording medium comprising:

a substrate;

a lower magnetic layer structure formed over the substrate;

an intermediate layer comprising Ru; and

an upper magnetic layer structure formed over the intermediate layer, said upper magnetic layer structure being antiferromagnetically coupled to the lower magnetic layer structure, data being recorded in said magnetic layer structures, wherein the relationship between the dynamic coercivity of the lower magnetic layer structure and the exchange field is such that after termination of application of a write magnetic field to ~~a~~ the usable locations on the disk a portion of the lower magnetic layer structure at said locations ~~achieves~~ achieve more than 90% of ~~its~~ their steady magnetization state within 15 milliseconds.

21. (Currently Amended) A magnetic recording medium comprising:

a substrate;

a lower magnetic layer structure formed over the substrate;

an intermediate layer comprising Ru; and

an upper magnetic layer structure formed over the intermediate layer, said upper magnetic layer structure being antiferromagnetically coupled to the lower magnetic layer structure, data being recorded in said magnetic layer structures, wherein the relationship

between the dynamic coercivity of the lower magnetic layer structure and the exchange field is such that after termination of application of a write magnetic field to ~~a~~ the usable locations on the disk a portion of the lower magnetic layer structure at said locations ~~achieves~~ achieve more than 95% of ~~its~~ their steady magnetization state within 15 milliseconds.

22. (Currently amended) Magnetic recording medium of claim 19 wherein ~~comprising:~~

~~a substrate;~~

~~a lower magnetic layer structure formed over said substrate,~~ said lower magnetic layer structure has ~~having~~ a Ku between 0 and 10^6 erg/cm^3~~;~~

~~an intermediate layer comprising Ru formed over the lower magnetic layer structure;~~ and

~~an upper magnetic layer structure formed over said intermediate layer,~~ said upper magnetic layer structure ~~being antiferromagnetically coupled to said lower magnetic layer structure and having~~ has a Ku greater than 10^6 erg/cm^3.

23. (Original) Magnetic recording medium of claim 22 wherein said lower magnetic layer structure has a Ku less than 0.5×10^6 erg/cm^3.

24. (Original) The magnetic recording medium of claim 22 wherein at least one of said upper and lower magnetic layer structures comprise a plurality of layers.

25. (Original) The magnetic recording medium of claim 22 wherein a lowest magnetic layer structure is formed above said substrate, a second intermediate layer comprising Ru is formed between said lowest magnetic layer structure and said lower magnetic layer structure, and wherein said lowest magnetic layer structure is antiferromagnetically coupled to said lower magnetic layer structure.

26. (Original) A magnetic disk drive comprising the magnetic recording medium of claim 22.

27. (Previously presented) A magnetic recording medium comprising:

a lower magnetic layer structure;

an intermediate layer comprising Ru formed over the lower magnetic layer structure; and

an upper magnetic layer structure comprising one or more magnetic layers antiferromagnetically coupled to the lower magnetic layer structure and formed over said intermediate layer, the dynamic coercivity of the lower magnetic layer structure being greater than or equal to zero but less than the exchange field between the upper and lower magnetic layer structures so that the magnetization direction in the one or more magnetic layers making up said upper magnetic layer structure is in a direction that is opposite to the magnetization direction of the lower magnetic layer structure, said upper magnetic layer structure comprising a data recording layer.

28. (Original) Magnetic recording medium of claim 27 wherein said dynamic coercivity of said lower magnetic layer structure is less than one half of the exchange field.

29. (Original) Magnetic recording medium of claim 27 wherein said dynamic coercivity is for a recording switching time between 1 and 10 ns.

30. (Original) The magnetic recording medium of claim 27 wherein at least one of said upper and lower magnetic layer structures comprise a plurality of layers.

31. (Original) The magnetic recording medium of claim 27 wherein a lowest magnetic layer structure is formed above said substrate, a second intermediate layer comprising Ru is formed between said lowest magnetic layer structure and said lower magnetic layer structure, and said lowest magnetic layer structure is antiferromagnetically coupled to said lower magnetic layer structure.

32. (Original) A magnetic disk drive comprising the magnetic recording medium of claim 27.

33. (Currently Amended) Magnetic recording medium comprising:

a substrate;

a lower magnetic layer structure formed over said substrate;

an intermediate layer comprising Ru formed over said lower magnetic layer structure; and

an upper magnetic layer structure comprising one or more magnetic layers formed over said intermediate layer, said upper magnetic layer structure being antiferromagnetically coupled to said lower magnetic layer structure, the coercivity of said lower magnetic layer structure as measured in a switching time of 10 milliseconds being less than the exchange field between said upper and lower magnetic layer structures so that the magnetization direction in the one or more magnetic layers making up said upper magnetic layer structure is in a direction that is opposite to the magnetization direction of the lower magnetic layer structure, said upper magnetic layer structure comprising a data recording layer.

34. (Original) Magnetic recording medium of claim 33 wherein said coercivity of said lower magnetic layer structure as measured in a switching time of 10 milliseconds is less than one half of the exchange field between said upper and lower magnetic layer structures.

35. (Previously presented) The magnetic recording medium of claim 33 wherein at least one of said upper and lower magnetic layer structures comprises a plurality of layers.

36. (Original) The magnetic recording medium of claim 33 wherein a lowest magnetic layer structure is formed above said substrate, a second intermediate layer

comprising Ru is formed between said lowest magnetic layer structure and said lower magnetic layer structure.

37. (Original) A magnetic disk drive comprising the magnetic recording medium of claim 33.

38. (Previously presented) Magnetic recording medium comprising:

a substrate;

a lower magnetic structure formed over said substrate, said lower magnetic structure comprising a magnetically soft material with intergranular decoupling;

an intermediate layer comprising Ru formed over said lower magnetic layer structure; and

an upper magnetic layer structure comprising one or more magnetic layers formed over said intermediate layer, said upper magnetic layer structure being antiferromagnetically coupled to said lower magnetic layer structure so that the magnetization direction in the one or more magnetic layers making up said upper magnetic layer structure is in a direction that is opposite to the magnetization direction of the lower magnetic layer structure, said upper magnetic layer structure comprising a data recording layer.

39. (Original) Magnetic recording medium of claim 38 wherein said lower magnetic layer structure comprises an alloy selected from the list consisting of permalloy, sendust, CoTaZr, FeTaC, NiFeNb, CoFe, NiCrFe, NiV, CuNi, FeRh and PtMn.

40. (Currently amended) A method comprising:

rotating a magnetic disk, said magnetic disk comprising a substrate, a lower magnetic layer structure formed over the substrate, an intermediate layer comprising Ru, and an upper magnetic layer structure formed over the intermediate layer, said upper magnetic layer structure being antiferromagnetically coupled to the lower magnetic layer structure;

storing data in the disk by applying [[a]] write magnetic fields to a locations on said magnetic disk; and

terminating the application of said write magnetic fields to said locations, wherein the relationship between the dynamic coercivity of the lower magnetic layer structure and the exchange field is such that after termination of application of a write magnetic fields to said locations on the disk the portions of the lower magnetic layer structure at said locations achieve[[s]] substantially ~~its~~ their steady magnetization state within the time required for one revolution of said disk.

41. (Currently amended) A method comprising:

rotating a magnetic disk, said magnetic disk comprising a substrate, a lower magnetic layer structure formed over the substrate, an intermediate layer comprising Ru, and an upper magnetic layer structure formed over the intermediate layer, said upper magnetic layer structure being antiferromagnetically coupled to the lower magnetic layer structure;

storing data in the disk by applying ~~a~~ write magnetic fields to ~~a~~ locations on said magnetic disk; and

terminating the application of said write magnetic fields to said locations, wherein the relationship between the dynamic coercivity of the lower magnetic layer structure and the exchange field is such that after termination of application of ~~a~~ write magnetic fields to said locations on the disk the portions of the lower magnetic layer structure at said locations achieve[[s]] more than 90% of ~~its~~ their steady magnetization state within the time required for one revolution of said disk.

42. (Currently amended) Method of claim 41 the relationship between the dynamic coercivity of the lower magnetic layer structure and the exchange field is such that after termination of application of [[a]] write magnetic fields to said locations on the disk the portions of the lower magnetic layer structure at said locations achieve[[s]] more than 95% of ~~its~~ their steady magnetization state within the time required for one revolution of said disk.

43. (Currently amended) A method comprising:

providing a magnetic recording medium, said magnetic recording medium comprising a substrate, a lower magnetic layer structure formed over the substrate, an intermediate layer comprising Ru, an upper magnetic layer structure formed over the intermediate layer, said upper magnetic layer structure being antiferromagnetically coupled to the lower magnetic layer structure;

storing data in the medium by applying [[a]] write magnetic fields to a locations on said magnetic recording medium; and

terminating the application of said write magnetic fields to said locations, wherein the relationship between the dynamic coercivity of the lower magnetic layer structure and the exchange field is such that after termination of application of [[a]] said write magnetic fields to said locations on the medium the portions of the lower magnetic layer structure at said locations achieve[[s]] substantially ~~its~~ their steady magnetization state within 15 milliseconds.

44. (Currently amended) A method comprising:

providing a magnetic recording medium, said medium comprising a substrate, a lower magnetic layer structure formed over the substrate, an intermediate layer comprising Ru, and an upper magnetic layer structure formed over the intermediate layer, said upper magnetic layer structure being antiferromagnetically coupled to the lower magnetic layer structure;

storing data in the medium by applying ~~a~~ write magnetic fields to ~~a~~ locations on said magnetic recording medium; and

terminating the application of said write magnetic fields to said locations, wherein the relationship between the dynamic coercivity of the lower magnetic layer structure and the exchange field is such that after termination of application of [[a]] said write magnetic fields to said locations on the medium the portions of the lower magnetic layer structure at said locations achieve[[s]] more than 90% of ~~its~~ their steady magnetization state within 15 milliseconds.

45. (Currently amended) Method of claim 44 wherein the relationship between the dynamic coercivity of the lower magnetic layer structure and the exchange field is such that after termination of application of a write magnetic fields to said locations on the medium the portions of the lower magnetic layer structure at said locations achieve[[s]] more than 95% of [[its]] their steady magnetization state within 15 milliseconds.

46. (Previously presented) Disk drive of claims 13, 17, or 18 wherein said disk longitudinally records data in the uppermost magnetic layer of said disk.

47. (Previously presented) Recording medium of claim 19, 20 or 21 wherein said medium longitudinally records data in the uppermost magnetic layer of said medium.

48. (Previously presented) Method of claims 40, 41 or 42 wherein said disk longitudinally records data in the uppermost magnetic layer of said disk.

49. (Previously presented) Method of claims 43, 44 or 45 wherein said medium longitudinally records data in the uppermost magnetic layer of said medium.